

Eastern Tiger Salamander (*Ambystoma tigrinum tigrinum*) Rediscovered in York County, Virginia

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Prior to the early 1970s, the basis for including the eastern tiger salamander (*Ambystoma tigrinum tigrinum*) in Virginia herpetofaunal checklists (Dunn, 1918, 1936; Burger, 1958) was a specimen in the National Museum of Natural History (USNM 9273) collected in September 1874 (no precise date available). Its locality was listed simply as "Virginia." It was not until 1973, almost a century later, that the first tiger salamanders with accurate locality data were discovered in the Commonwealth.

Funderburg et al. (1974) detailed the discovery of two tiger salamander egg masses in Jones Pond, 16 km west of Ashland, Hanover County, on 23 March 1973. The eggs were identified by David S. Lee, a field biologist experienced with the eggs and larvae of *A. tigrinum* in Maryland. Funderburg et al. (1974) reported that they been donated to the Natural History Society of Maryland. However, none have been found in this collection (R. W. Miller, pers. comm., 4 September 1994) and are presumed lost. David S. Lee (pers. comm., 3 October 1994) recalls identifying the eggs but cannot confirm their deposition in the Maryland collection. Thus, the occurrence of a tiger salamander population at Jones Pond in Hanover County remains unconfirmed.

Tirrell (1974) and Funderburg et al. (1974) each reported that two tiger salamanders had been found in a suburban garden under a tomato plant in Tabb, York County, on 13 October 1973. The larger of the two escaped, but the remaining individual was taken to the Peninsula Nature and Science Center (now the Virginia Living Museum) in Newport News, where it later died. It was preserved and deposited in the museum's vertebrate collection. The specimen (No. 73-50) is a young, probably immature male, 69 mm snout-vent length and 121 mm total length. Tiger salamanders are known to occur in only two other counties in the Virginia coastal plain: Isle of Wight (K.A. Buhlmann, pers. comm.) and Mathews (Pague & Buhlmann, 1991).

No additional specimens have been discovered in York County or adjacent counties despite field work conducted there by K.A. Buhlmann, C.A. Pague, and me between 1988 and 1994 (Division of Natural Heritage, 1990, 1992). No surveys have been conducted in the vicinity of Tabb, however. Several subdivisions exist in this area where there were none twenty years ago. Loss of wetland habitat has apparently been severe and the habitat around the original site appears to have been destroyed by urban developments (Pague & Buhlmann, 1991).

Nearly twenty years later, the Tabb tiger salamander story is repeated. On 21 May 1993, two *A. tigrinum* were discovered by a homeowner in his suburban backyard in Tabb, York County, only 0.8 km east of the 1973 collection site. They had been unearthed, presumably while the person was working in his garden. One salamander escaped, but the other, an immature? male (85 mm snout-vent length, 151 mm total length) which had been injured by a hoe, was taken to the Virginia Living Museum. It subsequently died and was given to Dr. Alan H. Savitzky for preservation. It is now catalogued in the Virginia Museum of Natural History's herpetological collection (VMNH 6654).

Amazingly, another specimen turned up at the same locality on 15 November 1993 (G. Mathews, pers. comm.). It was given to the Virginia Living Museum where it subsequently died on 1 February 1994; the specimen was unfortunately discarded.

Ambystoma tigrinum has been recognized as an endangered species by the Virginia Department of Game and Inland Fisheries since 1987 (Mitchell, 1991; Pague & Buhlmann, 1991). The recent discovery of three additional tiger salamanders, one presumably immature, in an area considered to have lost appropriate breeding habitat has conservation implications. Tiger salamanders are not yet extinct in this area, despite the increased urbanization

and the presumed loss of aquatic breeding sites. The population apparently continues to breed periodically and produce offspring, some of which reach metamorphosis. Thus, at least one local pool of water must remain as a useful breeding site for this species. The discovery of its location would be an important addition to our knowledge of this endangered species on the York-James Peninsula. The adult population may have declined since the discovery of this species in the early 1970s due to habitat loss, but some individuals appear to be surviving.

When should tiger salamanders and other subterranean vertebrates be considered extinct in a highly modified site? *Ambystoma tigrinum* is long-lived, reaching at least 20.5 years in captivity (Snider & Bowler, 1992). Adults may be able to withstand several years of poor breeding opportunities and survive for one to two decades in modified habitat. The discovery of an apparently immature individual suggests that the population in York County has enjoyed some recruitment via reproduction since the initial discovery in 1973. Thus, the assumptions (Pague & Buhlmann, 1991) that the site was completely degraded and the population had become extinct were not correct. Therefore, future assessments of the population status of *Ambystoma tigrinum*, as well as other long-lived, subterranean vertebrates, should be made with caution. A declaration of the extinction of a population of such animals in a degraded site should be made only after exhaustive field investigations have determined that no potential breeding ponds or other bodies of water allow successful reproduction. In addition, reasonable attempts must be made to search for adults over a period of several years. The rediscovery of *A. tigrinum* in York County also suggests that the site in Hanover County may still support this species.

It is clear that we know too little about the non-breeding ecology of this salamander. How far do adults and metamorphs disperse from the aquatic breeding sites? What is the average and maximum natural longevity? Can adults persist in areas for one or two decades without breeding? Can populations be maintained if reproductive success occurs only once or twice a decade? If such is the case, then much additional field work is needed to ascertain the current population status of the eastern tiger salamander in Virginia. This is especially true in the Hanover and York county sites because of the inadequacy of the available information.

Acknowledgments

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An Unusually Colored Northern Water Snake (*Nerodia sipedon sipedon*) from Giles County, Virginia

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Phenotypic variation among snake populations is widespread, encompassing a wide range of colors and patterns, from completely albinistic to completely melanistic (Wright & Wright, 1957; Hensley, 1959; Dyrkacz, 1981). Albinism has been found to occur in six species of snakes in Virginia: *Carphophis amoenus* from Fairfax County (Allard, 1945), *Elaphe obsoleta* from Rockbridge County (Carroll, 1950) and Westmoreland County (Hensley, 1959), *Heterodon platirhinos* from Fairfax County (Anonymous, 1961), *Lampropeltis triangulum* from Montgomery County (Hensley, 1959), *Nerodia sipedon* from New Kent County (Hensley, 1959), and *Thamnophis sirtalis* from Fauquier County (Shively & Mitchell, 1994). Melanism has been documented in three species. Of the 98 eastern hognose snakes (*Heterodon platirhinos*) examined by Mitchell (1994), 20.4% were melanistic. Bulmer (1985) briefly reported on a population of melanistic northern water snakes (*Nerodia s. sipedon*) from the Virginia side of the Potomac River. Completely melanistic timber rattlesnakes are occasionally observed in the mountains of Virginia (Mitchell, 1994; W. H. Martin, III, pers. comm.).

On 12 June 1988, Richard L. Hoffman found an unusually colored, young adult male *Nerodia sipedon* in Big Walker Creek at White Gate, Giles County, Virginia.

The snake was noticed swimming slowly near the stream bed, among large stones and submerged stems of American water-willow (*Justicia americana*) in swift-moving water about 0.3 m deep. When picked up, at midbody, it made no attempt to bite, nor did it manifest typical *sipedon* aggressiveness at any time during the several days it was held captive. The specimen was photographed and released at the place of capture on 16 June 1988.

The description, based on color photographs, is as follows: dorsum - black and red pigment completely lacking; head light brown; upper and lower labials light tan and outlined in slightly darker brown; background color of dorsum of body light tan with yellowish tinge; anterior crossbands slightly darker brown but nearly indistinct; dorsal and lateral blotches almost indistinguishable from background body color; spaces between lateral blotches light orange tan; venter - uniform yellow, without typical half-moon pattern; eye light brown with dark brown to black pupil.

This pattern differs substantially from the normal pattern of dark brown to reddish brown dorsal crossbands and body blotches on a brown background on the dorsum, and a cream to yellow venter with numerous reddish-brown half-moon-shaped figures usually arranged in two rows (Ernst & Barbour, 1989; Mitchell, 1994).